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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LEVINE, JOSHUA H

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/552,951	Applicant(s) OGILVIE, WILLIAM F.	
	Examiner JOSHUA LEVINE	Art Unit 3774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. This office action is responsive to the amendment filed on 01/21/2009. As directed by the amendment: no claims have been amended, no claims have been cancelled, and no new claims have been added. Thus, claims 1-20 are presently pending in this application.

Claim Rejections - 35 USC § 102

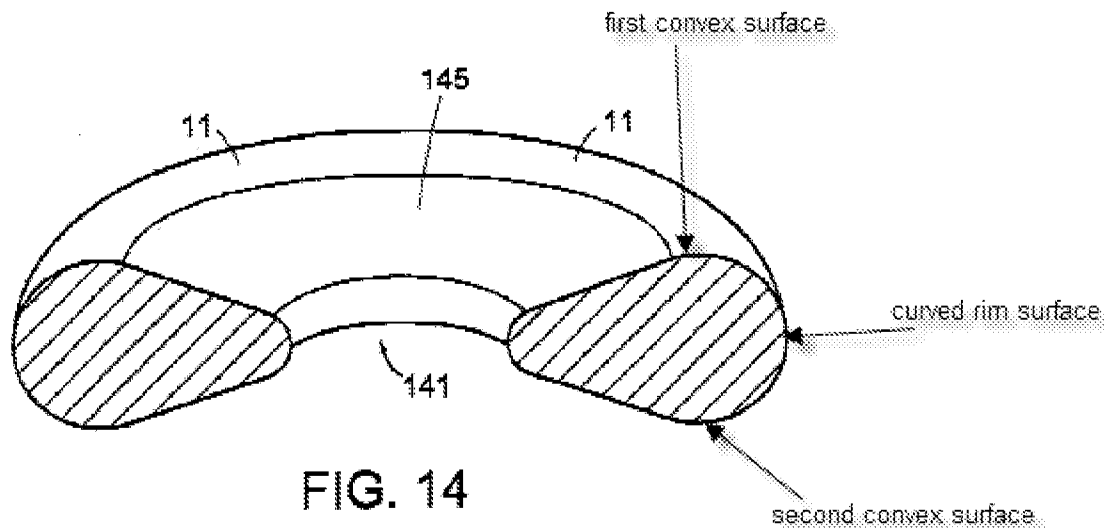
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, 4-5, 9-10, 12-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Serhan et al (7004971).

4. Regarding claim 1, Serhan disclosed a disk (figure 14) which is circular in plan view (column 5 lines 53-54) and has a pair of convex spherical surfaces (figure 14) and an axial, flaring hole 141 (figure 14) which extends there through from surface to surface, said convex spherical surfaces being interconnected at their peripheries by a curved rim surface (figure 14) which is a segment of a spheroid (column 5 lines 53-54).



5. Regarding claim 2 and 10, Serhan disclosed that the axial flaring opening is a section of a torus as shown in figure 14. The axial flaring hole is circular, a circle being a section of a torus.

6. Regarding claim 4 and 12, Serhan disclosed that the radius of curvature of transition surfaces between said toroidal surface and said convex spherical surfaces is between about 0.7 and about 3 mm (column 5 lines 38-39). The device is circular so that its thickness is equal to its diameter. Therefore its 4 mm thickness would correspond to 2mm radius of curvature.

7. Regarding claim 5, Serhan disclosed that the radii of curvature of said pair of convex spherical surfaces are the same as shown in figure 14.

8. Regarding claim 9, Serhan disclosed a circular disk (figure 14) having a pair of convex spherical surfaces (figure 14) and an axial, flaring opening 141 (figure 14) which extends there through from convex surface to convex surface, said convex spherical

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surfaces being interconnected at their peripheries by a curved rim surface (figure 14) which is a segment of a spheroid (figure 14).

9. Regarding claim 13, Serhan disclosed that the radii of curvature of said pair of convex spherical surfaces are the same (figure 14) and wherein said peripheral rim surface is a segment of a sphere (figure 14).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 3, 6, 11, 14 are rejected under 35 U.S.C. 103(a) as being obvious over Serhan et al (7004971).

12. Regarding claim 3 and 11, Serhan discloses the claimed invention including the radius of curvature except for the radius being 15% to 30% less than the height of the disk. It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the disk with the appropriate ratios for the purpose of providing the necessary strength to the implant to resist axial compressive forces while fitting in between an upper and lower bearing surface, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

13. Regarding claim 6 and 14, Serhan discloses the claimed invention including the radius of curvature of the convex surfaces and a peripheral rim is a segment of a sphere

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(figure 14) except for the radius of the convex surface being twice the radius of the circular disk. It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the disk with the radius of the surface being twice that of the disk for the purpose of providing the necessary strength to the implant to resist axial compressive forces while fitting in between an upper and lower bearing surface, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

14. Claims 7-8 and 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldberg (5888203) in further view of Pedersen et al. (PG Pub no. 20030093152).

15. Regarding claim 7 and 15, Goldberg et al. disclosed all the elements of the claim including resecting the base of the metacarpus and the distal surface of the trapezium (via arthroplasty, column 10 lines 57-59) to provide concave surfaces (cavities, column 10 lines 60-61) which match the convex surfaces of the disks 126/128 (figure 10) creating passageways in the metacarpus and the trapezium opening into said resected concave surfaces (channels, column 10 line 64, column 11 line 2) and surgically implanting the implant (via interference fit or cement, column 10 lines 59-60) except for the concave surfaces matching the surfaces of the disk of claim 1.

Pedersen teaches an implant a disk (figure 14, paragraph 257) which is circular in plan view and has a pair of convex spherical surfaces 49 (figure 14) and an axial, flaring hole 48 (central passage, paragraph 257) which extends there through from surface to surface to accommodate a flexible cord (ligament, paragraph 42) that is passed through

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passageways in the finger bones, said convex spherical surfaces being interconnected at their peripheries by a curved rim surface which is a segment of a spheroid (figure 14), which once surgically implanted allows the finger bone to flex relative to the other finger bone enough for useful hand function (paragraph 196), with each bone sliding on the respective mating convex surface of the disk while the flexible cord conforms to the flaring surface of the axial hole in the plane of flexion (paragraph 14). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the implant of Goldberg to include the biarticular implant of Pedersen for the purpose of introducing a prosthesis that establishes slidability and pressure distribution in a joint and is capable of being fixed or retained in a joint cavity in a non-invasive manner (paragraph 14).

16. Regarding claim 8 and 17, Goldberg et al. disclosed all the elements of the claim except for a step of selecting implants to be implanted.

Pedersen teaches an implant that includes the step of selecting said implant to be implanted from a set of said implants of different sizes but all having substantially the same radius of curvature of said convex surfaces (paragraphs 50-52). The examiner considers the implants to be different sizes with the same radius of curvature as the implants thickness can change while maintaining the implant's diameter. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the implant of Goldberg to include the sizes and radial curvatures of Pedersen, for the purpose of providing a prosthetic device to correspond to the dimensions of the joint and the degree of damage to the native cartilage.

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17. Regarding claim 16, Goldberg et al. disclosed all the elements of the claim including resecting the base of the metacarpus and the distal surface of the trapezium to provide concave surfaces of similar spherical curvature, and creating passageways in the metacarpus and the trapezium which will open into said resected concave surfaces (see claims 7 and 15 for further explanation), and surgically implanting said disk (fit or cemented, column 10 lines 59-60), which once surgically implanted allows the metacarpus to flex relative to the trapezium enough for useful hand function.

Pedersen teaches providing a circular disk having a pair of convex spherical surfaces of the same spherical curvature as said resected surfaces and an axial, flaring hole which extends there through from surface to surface to accommodate a flexible cord and said convex spherical surfaces being interconnected at their peripheries by a curved rim surface which is a segment of a spheroid (see claims 7 and 15 for further explanation and motivation).

18. Regarding claim 18, Goldberg et al. disclosed the step of passing a flexible cord through the passageway created in the metacarpus (column 10 lines 67, column 11 lines 1-3) and the passageway created in the trapezium (column 10 lines 61-65) so that the flexible cord conforms to a surface of the axial hole in the plane of flexion when each bone slides on the respective mating convex surface of the disk except for passing a cord through the flaring axial opening.

Pedersen teaches a passing a flexible cord (ligament, paragraph 42) through a flaring axial hole 48 (figure 14) of a disc implant. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the implant and procedure of

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Goldberg to include the passage of a flexible cord through the flaring axial hole of Pedersen for the purpose of locking the implant to an intra-articular component for fixating and retaining the device in the joint cavity.

19. Regarding claim 19, Goldberg disclosed wherein the flexible cord is a harvested tendon (column 5 lines 64-66).

20. Regarding claim 20, Goldberg disclosed wherein said tendon (palmaris longus, column 9 lines 18-20) is harvested from the vicinity of the CMC joint where it remains attached and the free end is passed through passageways and tied or knotted off (column 10 lines 57-66). The examiner considers the tendon to remain attached as it is attached to the surrounding ligaments, capsule or bone.

Response to Arguments

21. Applicant's arguments filed 01/21/2009 have been fully considered but they are not persuasive. Regarding independent claims 1 and 9, the applicant argues that the implant of Serhan is comprised of concave frustoconical surfaces that act as a cushion for an intervertebral disk rendering it not relevant to a CMC joint. The examiner disagrees with this interpretation as Serhan discloses a biocompatible disc with explicitly disclosed **convex surfaces** (column 4 lines 34-38), for use in the body whose surfaces are designed to abut opposing bones. The examiner views the disk of Serhan to be relevant to the instant application as it discloses a joint cushion between two bones, the difference being that Serhan cushions intervertebral bones while the instant application cushions finger bones. The examiner affirms that the structure of Serhan's

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biocompatible disk anticipates the instant claim's structure and allows it to meet the instant claim's functional limitations.

22. Applicant's arguments with respect to claims 7-8 and 15-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSHUA LEVINE whose telephone number is (571)270-5413. The examiner can normally be reached on Monday-Thursday 7:30am-5:00pm ETA.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Isabella can be reached on 571-272-4749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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